

REMARKS

Applicants have the following response to the Final Rejection and Advisory Action.

Claim Rejections - 35 USC §103

Claims 26-28 and 30

In the Final Rejection, the Examiner rejects Claims 29-30 and 32-35 [sic Claims 26-28, 30, 31 and 35] under 35 USC §103(a) as being unpatentable over Matsuda (US 6,078,071) in view of Oikawa et al. (US 4,619,695). This rejection is respectfully traversed.

In particular, independent Claim 26 is directed to a method of manufacturing a wiring in a semiconductor device wherein the wiring is formed of a tungsten film and wherein an amount of sodium contained within the wiring is 0.3 ppm or less. The Examiner admits that this last feature of Claim 26 is not disclosed in Matsuda. The Examiner, however, contends in the Final Rejection that Oikawa discloses this feature at col. 6, lns. 16-26 and col. 8, lns 6-13 in Oikawa.

Applicants respectfully disagree. Claim 26 clearly recites an amount of sodium within the wiring. In contrast, Col. 6, lns. 16-26 and col. 8, lns. 6-16 in Oikawa are directed to sodium concentration in the target. The sodium concentration in the target is not the same as sodium concentration in the wiring. For example, the specification for the present application recites a target purity (see e.g. [0065] in the substitute-specification; [0033] in translation) and a sodium concentration for a wiring (see e.g. [0069] in substitute-specification; [0037] in translation) in a different manner and place. Hence, they are not the same. In the Advisory Action, the Examiner agrees that this is true.

As a result, Applicants respectfully submit that the disclosure in Oikawa cannot be used to

allege a teaching of an amount of sodium within the wiring. Therefore, Oikawa does not disclose or suggest of the claimed feature of Claim 26 of wherein an amount of sodium contained within the wiring is 0.3 ppm or less.

In the Advisory Action, the Examiner, however, argues that Oikawa “discloses that the purity of the deposited film is governed by the purity of the target (see col. 2, lines 4-12).” However, this section in Oikawa is discussing a molybdenum target, not tungsten as in Claim 26 and is not relevant to the claimed invention. Further, there is nothing in this section in Oikawa that discloses the amount of sodium in the wiring or how the target purity is related on a quantitative basis with the amount of material in the wiring. The Examiner also cites col. 3, lines 51-59 in Oikawa in support thereof but this section is also discussing a molybdenum target and not tungsten and is not relevant to the claimed invention.

The Examiner then cites to the teachings in the specification of the present application and concludes that inherently similar results would be obtained. Applicants respectfully submit that this is improper. Initially, the use of the teachings of the present invention in the present application as the basis of a rejection is improper hindsight reconstruction. Further, the Examiner has provided no support for the hypothetical conclusion that this rejection is based on. It is respectfully requested that the Examiner provide a reference to support this conclusion or withdraw the rejection based thereon.

Independent Claim 31 includes the feature of wherein an amount of sodium contained within the gate electrode is 0.3 ppm or less. For similar reasons as discussed above for Claim 26, Claim 31 is also not disclosed or suggested by Oikawa.

Accordingly, the cited references fail to disclose or suggest the method of Claims 26-28, 30, 31 and 35, and the claims are patentable thereover. Therefore, it is respectfully requested that this rejection be withdrawn.

Claims 29-30 and 32-35

The Examiner also rejects Claims 29-30 and 32-35 under 35 USC §103(a) as being unpatentable over Matsuda in view of Oikawa and further in view of Brodsky et al. (US 6,245,668).

This rejection is also respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for independent Claims 26 and 31, these claims are also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 36 and 41

The Examiner also rejects Claims 36 and 41 under 35 USC §103(a) as being unpatentable over Matsuda in view of Oikawa or Ikeda and further in view of Kobeda et al. (US 5,208,170). This rejection is also respectfully traversed.

As explained above, the cited references do not disclose or suggest the claimed feature of wherein an amount of sodium contained within the tungsten wiring is 0.3 ppm or less, as recited in independent Claim 36, nor the feature of Claim 41 of wherein an amount of sodium contained within the gate electrode is 0.3 ppm or less. Hence, these claims are patentable over the cited references. Therefore, it is respectfully requested that this rejection be withdrawn.

Claims 37-40 and 42-45

The Examiner also rejects Claims 37-40 and 42-45 under 35 USC §103(a) as being unpatentable over Matsuda in view of Oikawa or Ikeda, and Koeda and further in view of Brodsky. This rejection is also respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for

the independent claims, these claims are also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

New Claims

Applicants are adding new dependent Claims 46-49 herewith. It is respectfully requested that these new claims be entered and allowed. If any fee should be due for these new claims, please charge our deposit account 50/1039.


Conclusion

Accordingly, for at least the above-stated reasons, the present application is in a condition for allowance and should be allowed.

If any further fee is due for this amendment and the submissions herewith, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,


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